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WATER SUPPLY OUTLOOK FOR ARIZONA

U.S. DEPT. OF AGRICULTURE
NATIONAL SOIL CONSERVATION SERVICE

JUL 17 1967

CURRENT TO FILE 1-107439

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE.
SALT RIVER VALLEY WATER USERS ASSOCIATION
and
ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Federal, State and private organizations listed on the last page of this report.

AS OF
MAR. 15, 1967

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83701
Montana	P. O. Box 855, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4001 Federal Building, Salt Lake City, Utah 84111
Washington	840 Bon Marche Bldg., Spokane, Washington 99206
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
ARIZONA

(Salt, Verde, Gila and Part of Lower Colorado River Basin)

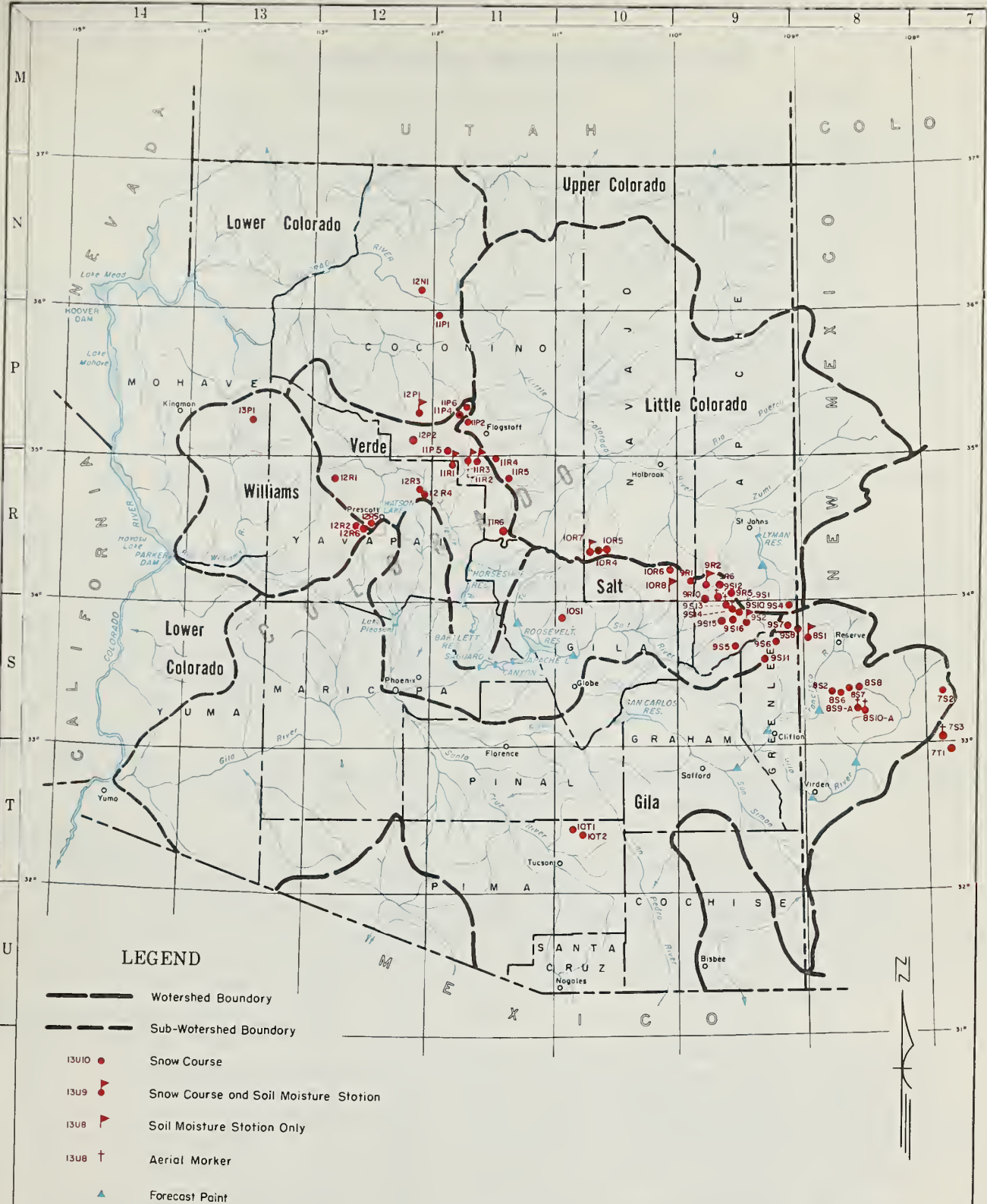
Report prepared by

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Issued by

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STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE

VICTOR I. CORBELL
PRESIDENT
SALT RIVER VALLEY WATER USERS ASSOCIATION



ARIZONA COOPERATIVE SNOW SURVEYS Snow Courses and Sub-Watersheds

25 0 25 50 75
SCALE IN MILES

INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

Number	Name	Sec	Twp	Rge	Elevation	River Basin
11R6	Baker Butte (p)	4	12N	9E	7300	Verde
9S1	Baldy (p)	28	7N	27E	9125	Little Colorado
9S15	Baldy #2	12	6N	26E	10000	Little Colorado
9S16	Baldy #3	13	6N	26E	11000	Little Colorado
10T1	Bear Wallow	6	12S	16E	8100	Gila
9S6	Beaver Head	13	4N	30E	8000	San Francisco
9S10-*	Black River Divide	10	6N	27E	9400	Salt
12N1	Bright Angel	34	33N	3E	8400	Lower Colorado
12R1	Camp Wood	3	16N	6W	5700	Verde
10R7-M	Canyon Creek #2	18	11N	15E	7500	Little Colorado
11R2-M	Casner Park	19	18N	8E	6930	Verde
12P1-M	Chalender	27	22N	3E	7100	Verde
12R6	Copper Basin Divide (p)	23	13N	3W	6720	Verde
10R8-*	Corduroy Creek	4	8N	21E	6000	Salt
9S7	Coronado Trail	26	5N	30E	8000	San Francisco
7T1	Emory Pass	16	16S	9W**	7800	Mimbres
10R6	Forest Dale	2	9N	21E	6430	Salt
11P2	Fort Valley (p)	22	22N	6E	7350	Little Colorado
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado
8S1-M	Frisco Divide	31	6S	20W**	8000	San Francisco
12R4	Gaddes Canyon	11	15N	2E	7600	Verde
10R5	Gentry	36	11N	15E	7650	Salt
11P1	Grand Canyon	21	30N	4E	7500	Lower Colorado
9S11	Hannagan Meadows (p)	19	3N	29E	9090	Salt
11R5	Happy Jack	30	17N	9E	7630	Verde
9R10	Hawley Lake	13	7N	24E	8300	Salt
10R4	Heber (p)	28	11N	15E	7600	Little Colorado
8S9-A	Hummingbird	19	11S	17W**	10550	San Francisco
8S6	Ice King	6	11S	18W**	8020	San Francisco
7S2	Inman	6	11S	10W**	7800	Gila
12R2	Iron Springs	22	14N	3W	6200	Bill Williams
9S2	Maverick Fork (p)	13	6N	27E	9150	Salt
9R2-M	McNary	23	8N	23E	7200	Salt
7S3-A	McKnight Cabin	10	15S	10W**	9300	Mimbres
9R1	Milk Ranch	33	8N	23E	7000	Salt
12R3	Mingus Mountain	3	15N	2E	7100	Verde
8S2	Mogollon	2	11S	19W**	7000	San Francisco
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado
11R3-M	Mormon Mountain (p)	14	18N	8E	7500	Verde
9S12-A	Mt. Ord	4	6N	26E	11000	Salt
11R1-M	Munds Park	7	18N	7E	6500	Verde
11P5-M	Newman Park	25	19N	6E	6750	Verde
9S4	Nutriosio	23	6N	30E	8500	San Francisco
9S5	Pacheta	27	4-1/2N	27E	7800	Salt
8S7	Redstone Trail	5	11S	18W**	8600	San Francisco
10T2	Rose Canyon	15	12S	16E	7300	Gila
8S8	Silver Creek Divide	4	11S	18W**	9000	San Francisco
9S13-A	Smith Cienega #1	10	6N	26E	9700	Salt
9S14-A	Smith Cienega #2	3	6N	26E	9900	Salt
11P4	Snow Bowl #1 (p)	36	23N	6E	10260	Verde
11P6	Snow Bowl #2	31	23N	7E	11000	Verde
9S8	State Line	6	6S	21W**	8000	San Francisco
12R5	White Spar	19	13N	2W	6000	Verde
12P2	Whitehorse Lake	2	20N	2E	7150	Verde
8S10-A	Whitewater	19	11S	17W**	10750	Gila
13P1	Willow Ranch	16	21N	11W	5000	Bill Williams
9R6	Wilson Lake (p)	4	7N	26E	9000	Salt
10S1	Workman Creek	33	6N	14E	6900	Salt

* SOIL MOISTURE STA. ONLY

** NM PRINCIPAL MERIDIAN

M SOIL MOISTURE STA.

(p) STORAGE GAGE

A AERIAL SNOW DEPTH MARKER

ARIZONA WATER SUPPLY OUTLOOK

MARCH 15, 1967

* * * * *
* Prospects of getting significant runoff this spring dwindle *
* as snow cover continues to decline and precipitation is below *
* normal. Reservoir storage, however, is high and water supplies *
* will be adequate in areas served by storage facilities. *
* * * * *

SNOW COVER

Although there was light snowfall the last two weeks, all but the highest elevation snow courses show declines in water content. The snow line is now generally above 9,000. This is the least amount of snow for this date since records began twenty years ago. In the White Mountains and on the San Francisco Peaks, however, there is close to four feet of snow containing 12-14" of water. Snow cover is heaviest on the Salt and Little Colorado River Watersheds where the average snow water equivalent is only 6% and 14% of average respectively.

PRECIPITATION

February precipitation was deficient at all stations and some all time record low amounts were reported. There were a few storms the last two weeks, but precipitation was very localized. The Mogollon Rim area south of Heber received the heaviest precipitation with 1.93". The White Mountains picked up 1.3" while the higher elevation of the Gila Watershed received 3/4 of an inch. On the Verde Watershed precipitation was very light with maximum amounts under 1/4".

SOIL MOISTURE

Light precipitation accompanied by warm winds has reduced surface soil moisture in most areas. Subsoils are still wet from early winter storms.

RESERVOIR STORAGE

Normally heavy water use this time of year is reducing storage in the major reservoirs as inflow continues deficient. Due to good carry-over storage from last year, however, Salt River Project Reservoirs are still close to two times average, while stored water in San Carlos and Lake Pleasant is 3-1/2 to 4 times average. Most Northern Arizona Reservoirs also contain several times their average amounts of water.

STREAM FLOW AND WATER SUPPLY

Stream flow on the Verde and Gila River is slowly dropping with 266 cfs and 108 cfs respectively reported on March 15. The Salt River with a flow of 367 cfs is rising slightly due to recent precipitation and warm temperatures. With snow cover so low and the prospects of receiving substantial precipitation diminishing every day, all stream flow forecasts have been further reduced. Runoff is predicted to be 10-30% of average in Central and Eastern Arizona.

Normal runoff in the amount of 7.7 million acre feet is forecast for the Colorado River at inflow to Lake Powell.

Water supplies will be adequate in Central Arizona and other projects having storage facilities. Areas depending on direct diversion from streams will be short of water and heavy supplemental pumping will be required.



STREAM FLOW FORECASTS - MARCH 15, 1967

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

SUB-WATERSHED, STREAM and STATION	SEASONAL STREAM FLOW IN THOUSANDS OF ACRE FEET					
	FORECAST PERIOD: MARCH - MAY, INCLUSIVE					
	Forecast Runoff 1967	Percent 15-Year Average	Measured Runoff			1948-62 Average
			1966	1965	1964	
Salt River near Roosevelt	49	22	483.8	396.0	93.1	226.4
Tonto River near Roosevelt	5	20	15.4	77.0	9.6	25.4
Verde River above Horseshoe	39	34	132.2	365.5	90.4	113.7
Gila River near Gila	12	34	91.1	32.6	12.0	35.5
Gila River near Virden	8.5	21	111.5	36.1	10.3	39.7
Gila River near Solomon	16.5	21	227.7	69.4	17.3	77.7
" " " "Month of March	7	18	148.7	30.2	6.6	38.7
Frisco River at Clifton	9	22	111.0	38.8	9.9	40.5
Frisco River near Glenwood	3	17	56.2	16.4	2.3	17.3
Mimbres River near Mimbres	0.4	15	---	0.7	0.7	2.7
Little Colorado River above Lyman Dam (MARCH-JUNE, Incl.)	0.8	9	21.2	18.6	4.5	8.7
*Colorado River -- Lake Powell Inflow (APRIL-JULY, Incl.) #	7,700	100	4600.0	11810.0	5388.0	7692.0
*Virgin River near Virgin (APRIL-JUNE, Incl.)	34	79	39.0	63.0	37.0	43.0
Virgin River near Littlefield (APRIL-JUNE, Incl.)	26	60	---	63.0	26.0	43.0

The Gila River near Solomon is predicted to flow above 100 cfs until March 20. Granite Creek is predicted to flow 150 Acre Feet, not materially changing the storage in Watson Lake.

* Forecast issued by Soil Conservation Service, Salt Lake City, Utah.

Observed flow plus change in storage of upstream reservoirs as compiled by U. S. Bureau of Reclamation.

Vol. 100, Part 1, 1970
Published by the Royal Anthropological Institute of Great Britain and Ireland
London, 1970

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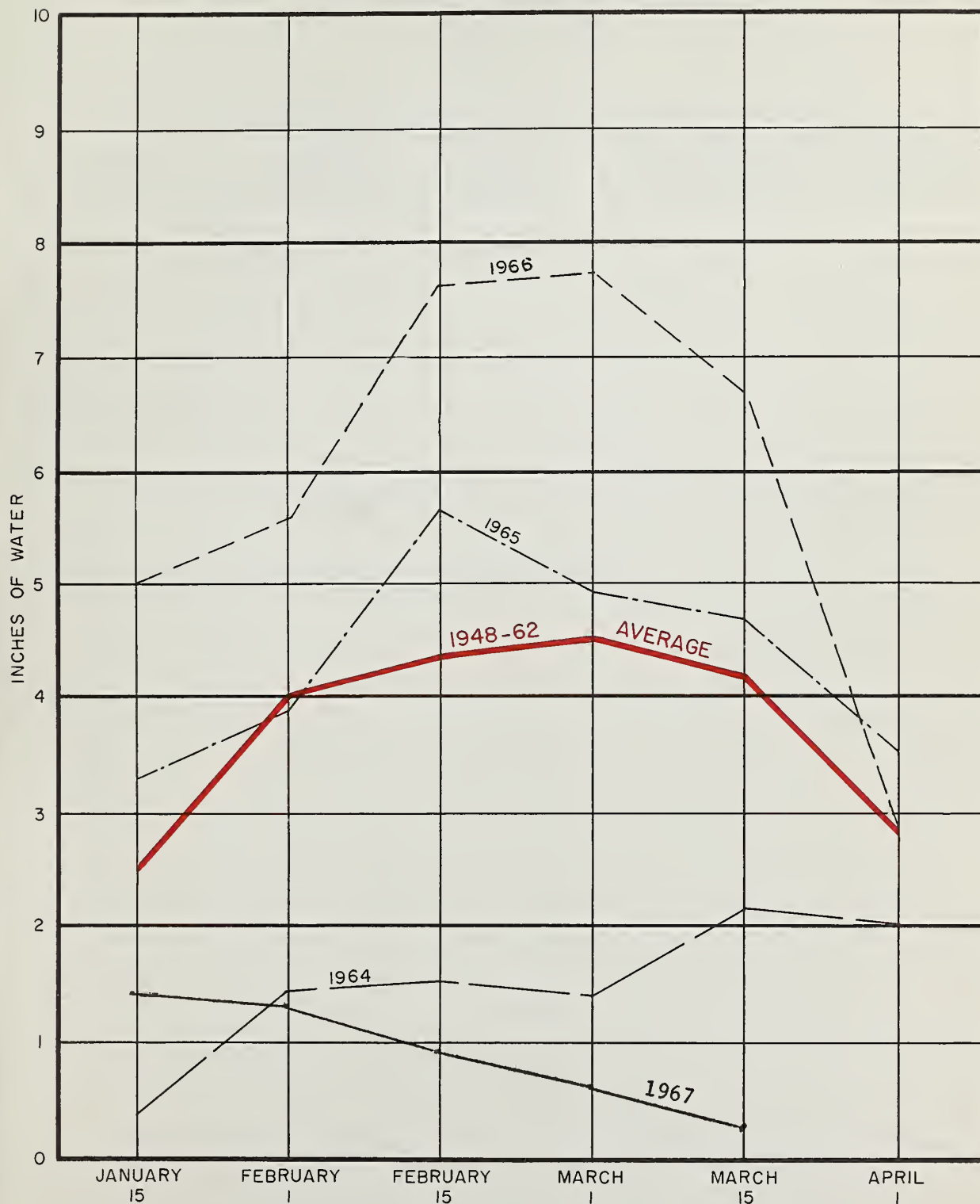
Published by the Royal Anthropological Institute of Great Britain and Ireland
London, 1970

STATUS OF ARIZONA RESERVOIR STORAGE - ABOUT MARCH 15, 1967

SUB- WATERSHED and/or STREAM	RESERVOIR	USABLE CAPACITY 1000's ACRE FT.	USABLE STORAGE - 1000s ACRE FEET			
			1967	1966	1965	15-Year Average 1948-62
<u>GILA RIVER DRAINAGE</u>						
Agua Fria	Lake Pleasant	157.6	123.8	157.3	28.9	31.9
Granite	Watson Lake	4.7	3.3	4.7	3.5	---
"	Willow Creek	6.1	3.9	6.1	---	---
Gila	San Carlos	1,206.0	289.6	426.3	76.6	79.1
Verde	Bartlett	179.5	122.0	158.8	148.5	84.4
Verde	Horseshoe	142.8	29.6	139.0	5.6	27.5
Salt	Roosevelt	1,382.0	1,096.1	1,260.9	522.1	443.5
Salt	Apache	245.0	242.7	235.8	233.1	208.6
Salt	Canyon	58.0	51.7	51.2	53.4	48.7
Salt	Saguaro	70.0	68.4	50.2	63.9	54.8
<u>COLORADO RIVER DRAINAGE</u>						
Colorado	Lake Havasu	619.4	522.0	529.4	553.9	550.1
Colorado	Lake Mohave	1,810.0	1,670.1	1,726.0	1,688.0	1,579.7 *
Colorado	Lake Mead	27,207.0	15,566.0	15,532.0	11,208.0	16,825.1
Colorado	Lake Powell	25,002.0	7,424.1	8,720.0	6,231.0	---
Little Colo.	Lyman	30.6	17.7	21.6	11.5	7.6
Little Colo.	Show Low Lake	5.1	.5	5.1	3.5	1.4 *

*Average is for less than 15 years of record in the 1948-62 period.

RELATIVE SNOW WATER ACCUMULATION ARIZONA 1967



This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.

SNOW COVER ON ARIZONA WATERSHEDS

MARCH 15, 1967

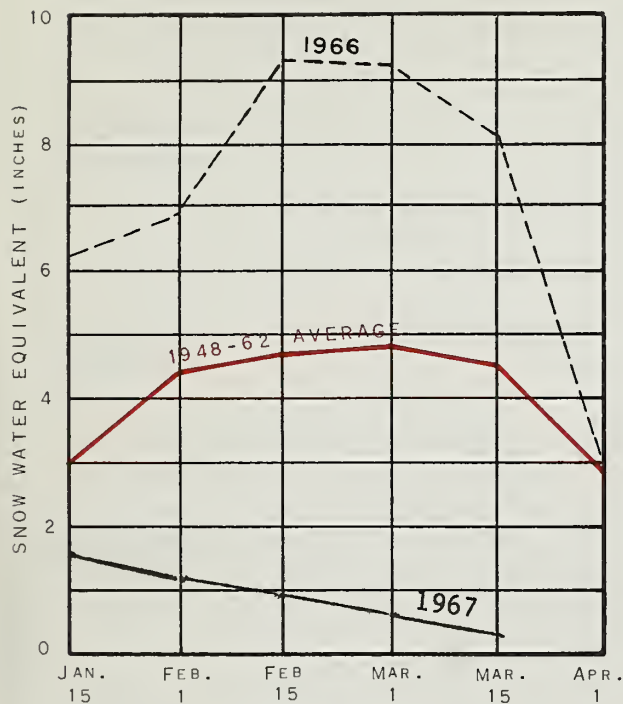
Watershed	No. of Courses Average	Water Content of Snow (Inches)	This Year's Water Content of Snow Expressed as Percent of:	
			Last Year	Average *
Gila	7	0.0	0%	0%
Salt	10	0.3	4%	6%
Verde	7	0.0	0%	0%
Little Colorado	4	0.7	9%	14%

* Actual or Estimated 1948-62, 15-year Average

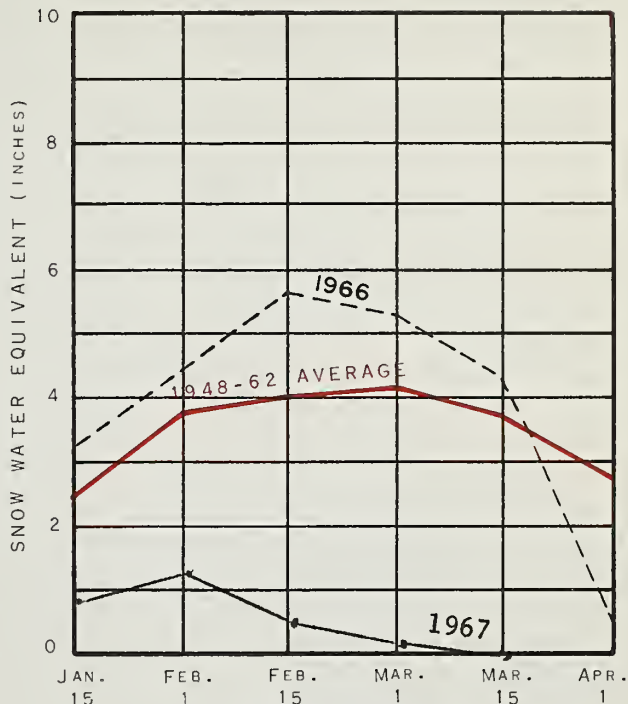
1967

ARIZONA SNOW COVER

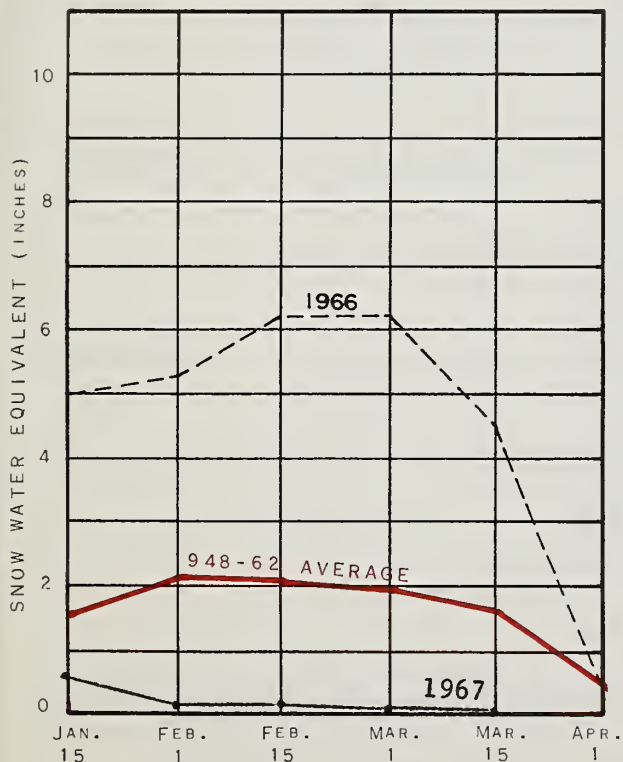
BY WATERSHEDS



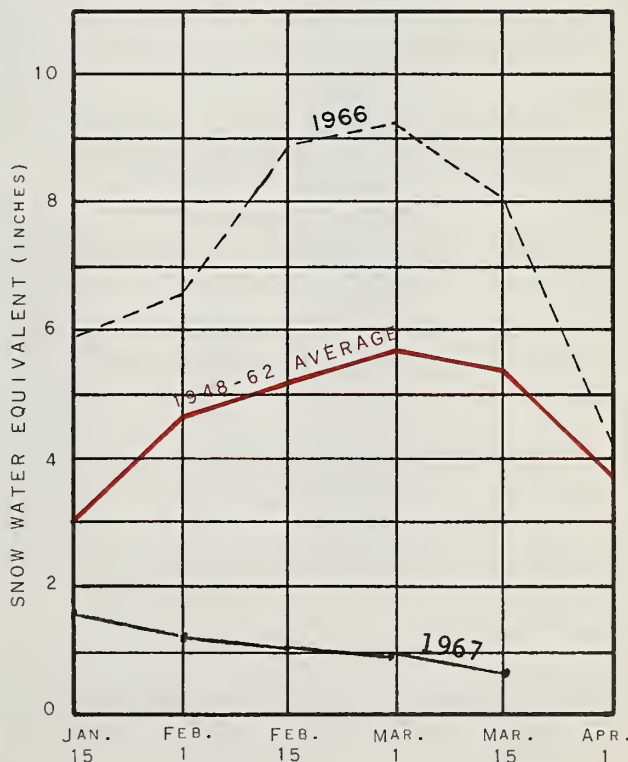
SALT RIVER



VERDE RIVER



GILA RIVER

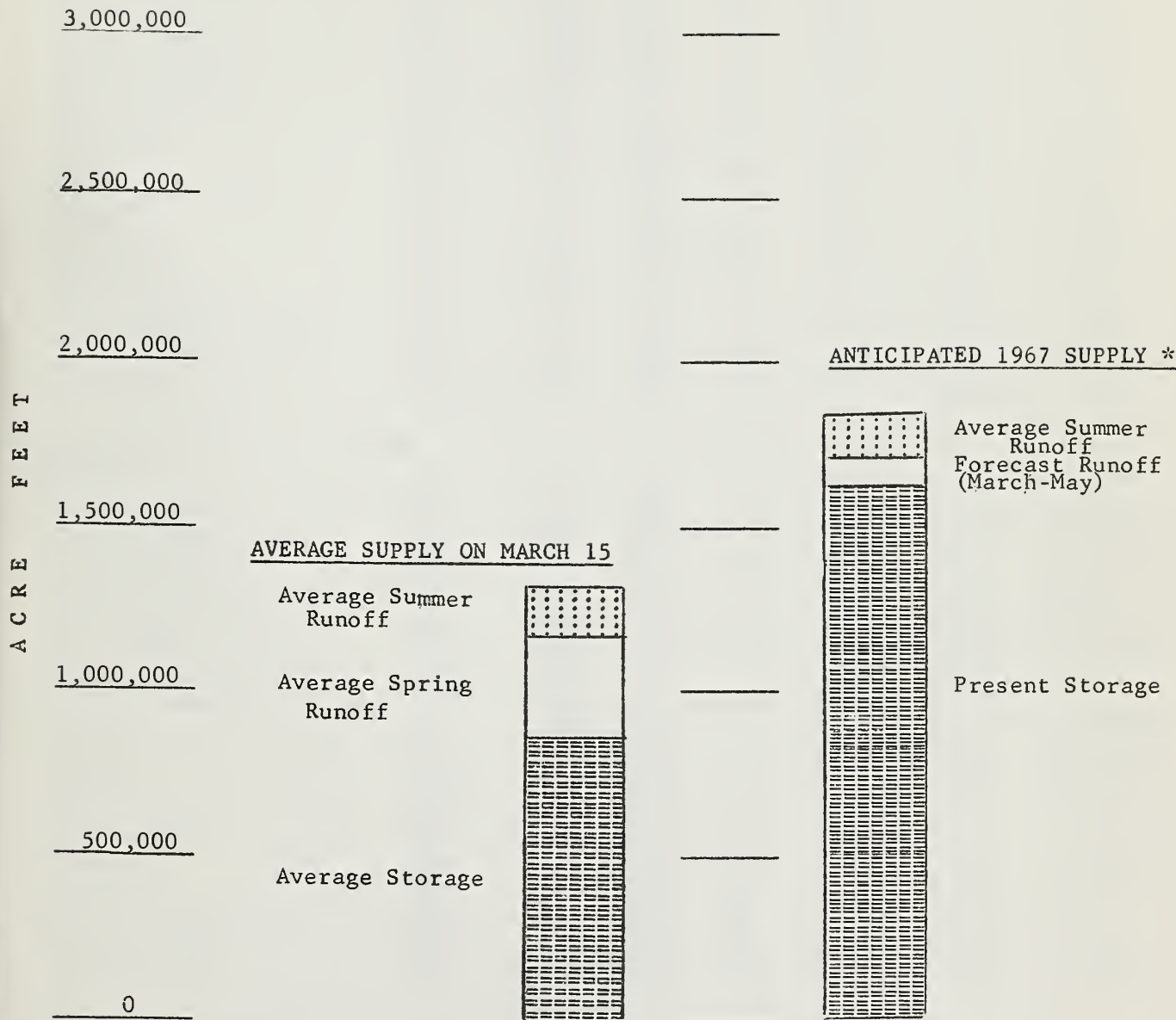


LITTLE COLORADO RIVER

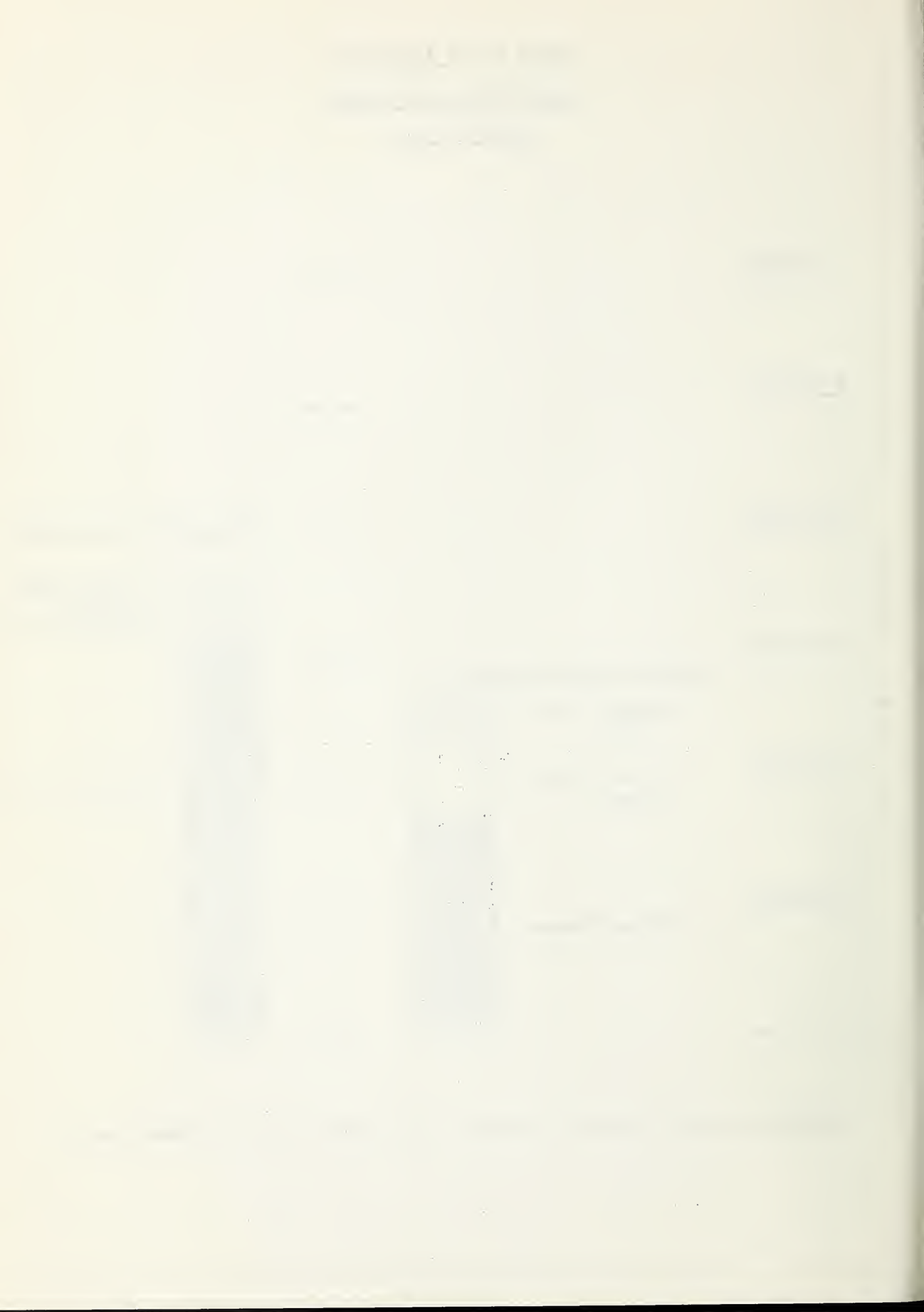
BASED ON SELECTED SNOW SURVEY COURSES



WATER SUPPLY INVENTORY
SALT RIVER VALLEY SYSTEM
MARCH 15, 1967



* Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff



SNOW ABOUT MARCH 15, 1967

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE ^a
GILA RIVER							
Bear Wallow	10T1	8100	3/14	0	0.0	16.5	2.8
Beaver Head	9S6	8000	3/13	0	0.0	7.7	2.5
Coronado Trail	9S7	8000	3/13	0	0.0	7.1	2.1
Crazy Horse (A)	9T2-A	10200	---	---	---	38.0	---
Emory Pass #1 *	7T1	7800	3/14	0	0.0	---	---
Emory Pass #2 *	7T2	7800	3/14	0	0.0	---	---
Frisco Divide	8S1-M	8000	3/13	0	0.0	5.6	1.6
Hannagan Meadows *	9S11	9090	3/13	2	0.7	18.5	---
High Peak (A)	9T1-A	10600	---	---	---	42.0	---
Hummingbird (A)	8S9-A	10550	3/14	14	3.8	30.4	---
Ice King	8S6	8020	3/14	3	1.0	9.1	---
Inman	7S2	7800	3/14	0	0.0	0.0	0.4
McKnight Cabin *	7S3	9300	3/14	0	0.0	---	---
Mogollon	8S2	7000	3/14	0	0.0	1.5	1.6 **
Nutriso	9S4	8500	3/13	0	0.0	4.1	1.4
Redstone Trail	8S7	8600	3/14	7	2.6	13.7	---
Rose Canyon	10T2	7300	3/14	0	0.0	8.1	1.1
Silver Creek Divide	8S8	9000	3/14	16	5.0	20.0	---
State Line	9S8	8000	3/13	0	0.0	6.1	1.5
Whitewater (A)	8S10-A	10750	3/14	36	9.4	34.0	---

SALT RIVER

Baldy	9S1	9125	3/14	2	0.6	12.2	8.7 **
Beaver Head	9S6	8000	3/13	0	0.0	7.7	2.5
Canyon Creek	10R7-M	7500	3/14	0	0.0	4.1	2.6 **
Canyon Point	10R8	7600	3/14	0	0.0	---	---
Coronado Trail	9S7	8000	3/13	0	0.0	7.1	2.1
Forest Dale	10R6	6430	3/14	0	0.0	0.0	0.4
Ft. Apache	9R5	9160	3/14	7	2.3	12.6	9.6 **
Hannagan Meadows	9S11	9090	3/13	2	0.7	18.5	---
Hawley Lake	9R10	8300	3/14	0	0.0	7.9	---
Heber	10R4	7600	3/14	0	0.0	5.4	2.5 **
Maverick Fork	9S2	9050	3/14	0	0.0	16.8	11.3 **
McNary	9R2-M	7200	3/14	0	0.0	3.4	1.5
Milk Ranch	9R1	7000	3/14	0	0.0	0.4	0.8
Mt. Ord (A)	9S12-A	11000	3/14	47	11.7	---	---
Nutriso *	9S4	8500	3/13	0	0.0	4.1	1.4
Pacheta	9S5	7800	3/14	0	0.0	7.1	2.8 **
Smith Cienega (A)	9S14-A	9850	3/14	29	9.6	---	---
Wilson Lake	9R6	9100	3/14	14	4.9	13.4	---
Workman Creek	10S1	6900	3/14	0	0.0	9.2	3.6 **

BILL WILLIAMS RIVER

Camp Wood *	12R1	5700	3/13	0	0.0	0.0	0.4
Copper Basin Divide	12R6	6720	3/14	0	0.0	1.1	---
Iron Springs	12R2	6200	3/14	0	0.0	0.0	0.7
Willow Ranch	13P1	5000	3/14	0	0.0	0.0	0.1

(a) 1948-62, 15 year period. (*) Adjacent drainage. (**) 1948-62 Adjusted Average. (A) Aerial observation: Water content estimated.

Year	Population (millions)	GDP (billions of dollars)	Life expectancy (years)	Urban population (millions)	Industrial production (billions of tons)	Energy consumption (billions of tons of oil equivalent)
1900	1.6	100	47	0.5	0.1	0.1
1910	1.7	150	48	0.6	0.2	0.2
1920	1.8	200	49	0.7	0.3	0.3
1930	1.9	250	50	0.8	0.4	0.4
1940	2.0	300	51	0.9	0.5	0.5
1950	2.5	400	52	1.2	0.8	0.8
1960	3.0	600	53	1.8	1.5	1.5
1970	3.7	1000	54	2.5	3.0	3.0
1980	4.4	1500	55	3.2	6.0	6.0
1990	5.3	2500	56	4.0	12.0	12.0
2000	6.1	4000	57	4.8	24.0	24.0
2010	6.9	6000	58	5.5	48.0	48.0
2020	7.7	8000	59	6.2	96.0	96.0
2030	8.5	10000	60	6.9	144.0	144.0
2040	9.3	12000	61	7.6	192.0	192.0
2050	10.1	14000	62	8.3	240.0	240.0
2060	10.9	16000	63	9.0	288.0	288.0
2070	11.7	18000	64	9.7	336.0	336.0
2080	12.5	20000	65	10.4	384.0	384.0
2090	13.3	22000	66	11.1	432.0	432.0
2100	14.1	24000	67	11.8	480.0	480.0

SNOW

ABOUT MARCH 15, 1967

DRAINAGE BASIN and SNOW COURSE			CURRENT INFORMATION			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH (inches)	WATER CONTENT (inches)	WATER CONTENT (inches)	
NAME	NO.	ELEVATION				LAST YEAR	AVERAGE ^a

VERDE RIVER

Baker Butte	11R6	7300	3/14	0	0.0	9.3	---
Camp Wood	12R1	5700	3/13	0	0.0	0.0	0.4
Chalender	12P1-M	7100	3/14	0	0.0	3.7	2.8
Copper Basin Divide	12R6	6720	3/14	0	0.0	1.1	---
Fort Valley	11P2	7350	3/14	0	0.0	3.0	2.1
Gaddes Canyon	12R4	7600	3/14	0	0.0	7.8	6.2 **
Happy Jack	11R5	7630	3/14	0	0.0	3.0	3.2 **
Iron Springs *	12R2	6200	3/14	0	0.0	0.0	0.7
Mingus Mountain	12R3	7100	3/14	0	0.0	0.0	0.7
Mormon Lake *	11R4	7350	3/14	0	0.0	5.4	4.4
Mormon Mountain	11R3-M	7500	3/14	0	0.0	7.6	6.4 **
Munds Park	11R1-M	6500	3/14	0	0.0	2.5	2.2 **
Newman Park	11P5-M	6750	3/14	0	0.0	1.6	---
Snow Bowl #1	11P4	10260	3/14	22	7.0	13.2	---
Snow Bowl #2	11P6	11200	3/14	43	13.9	26.4	---
White Spar	12R5	6000	3/14	0	0.0	0.0	---
White Horse Lake Jct.	12P2	7180	3/14	0	0.0	---	---

LOWER COLORADO RIVER

Bill Williams Summit	12P4	8950	3/14	17	6.1	---	---
Bill " Intermediate	12P5	8550	3/14	7	2.0	---	---
Bright Angel	12N1	8400	---	---	---	---	10.2 **
Chalender *	12P1-M	7100	3/14	0	0.0	3.7	2.8
Fort Valley	11P2	7350	3/14	0	0.0	3.0	2.1
Grand Canyon	11P1	7500	3/14	0	0.0	1.2	1.6
Williams Ski Run	12P3	7720	3/14	7	2.1	---	---

LITTLE COLORADO RIVER

Baldy	9S1	9125	3/14	2	0.6	12.2	8.7 **
Canyon Creek	10R7-M	7500	3/14	0	0.0	4.1	2.6 **
Canyon Point	10R8	7600	3/14	0	0.0	---	---
Forest Dale	10R6	6430	3/14	0	0.0	0.0	0.4
Ft. Apache	9R5	9160	3/14	7	2.3	12.6	9.6 **
Fort Valley	11P2	7350	3/14	0	0.0	3.0	2.1
Happy Jack *	11R5	7630	3/14	0	0.0	3.0	3.2 **
Heber	10R4	7600	3/14	0	0.0	5.4	2.5 **
McNary	9R2-M	7200	3/14	0	0.0	3.4	1.5
Mormon Lake	11R4	7350	3/14	0	0.0	5.4	4.4
Mormon Mountain	11R3-M	7500	3/14	0	0.0	7.6	6.4 **
Nutriso	9S4	8500	3/13	0	0.0	4.1	1.4
Snow Bowl #1	11P4	10260	3/14	22	7.0	13.2	---
Snow Bowl #2	11P6	11200	3/14	43	13.9	26.4	---
Wilson Lake *	9R6	9100	3/14	14	4.9	13.4	---

(a) 1948-62, 15 year period. (*) Adjacent drainage. (**) 1948-62 Adjusted Average. (A) Aerial observation: Water content estimated.



PRECIPITATION AT SELECTED ARIZONA STATIONS ¹

STATION	Precipitation (Inches)			
	February - 1967		Current Water Year (Oct.1966 - Feb.1967)	
	Total	Departure from Average	Total	Departure from Average
Alpine	.65	- .73	5.18	- 1.60
Ash Fork	.00	- 1.15	5.16	+ .39
Clifton	.55	- .36	1.55	- 2.73
Douglas Smelter	.19	- .40	.50	- 2.58
Flagstaff WBAS*	T	- 1.78	10.42	+ 2.64
McNary	.24	- 1.90	6.73	- 3.51
Payson Ranger Station	.00	- 2.19	5.49	- 3.57
Phoenix WBAS	.00	- .85	1.40	- 1.98
Prescott	T	- 1.94	6.82	- 1.17
Tucson WBAS	.13	- .71	.74	- 3.10
Winslow WBAS	.01	- .47	2.09	- .36
Yuma WBAS	.00	- .36	.30	- 1.27

^{1/} Data and Analysis furnished by Paul C. Kangieser,
Arizona State Climatologist, U. S. Weather Bureau,
ESSA, Tempe.

* WBAS = Weather Bureau Airport Station



PRECIPITATION

STORAGE GAGE DATA - ABOUT MARCH 15, 1967

Drainage Basin and Storage Gage	Elev.	Current Data		1948-62	From Approx. 11/1 to Date		
		Date of Reading	Mar. 1-15 Precip.	Av. Precip. Mar. 1-15	This Year	1948-62 Average	% of Average
<u>GILA RIVER</u>							
Silver Creek Divide	9000	3/14	.70	---	7.20	---	---
Hannagan Meadows	9030	3/13	.75	1.69*	7.59	12.22*	62
<u>SALT RIVER</u>							
Canyon Point	7600	3/14	1.93	---	13.88	---	---
Hannagan Meadows	9030	3/13	.75	1.69*	7.59	12.22*	62
Little Wildcat (Heber Snow Course)	7600	3/14	1.72	1.60*	9.99	12.57*	79
Maverick Fork	9050	3/14	1.30	1.49*	7.47	10.70*	70
Workman Creek **	6970	3/13	1.57	1.83	12.83	15.37	83
Wilson Lake	9100	3/14	1.05	-----	6.26	---	---
<u>VERDE RIVER</u>							
Baker Butte	7300	3/14	.52	---	11.06	---	---
Copper Basin Divide	6720	3/14	.07	---	8.03	---	---
Fort Valley **	7350	3/14	.23	.92	9.11	8.08	113
Happy Jack **	7480	3/14	.08	1.33*	7.39	10.49*	70
Mingus Mountain	7660	3/14	.05	1.06	4.25	9.06	47
Mormon Mountain	7500	3/14	.45	---	19.90	---	---
<u>LITTLE COLORADO</u>							
Sheep Crossing (Baldy Snow Course)	9125	3/14	1.30	1.26*	6.93	9.61*	72
Little Wildcat (Heber Snow Course)	7600	3/14	1.72	1.60*	9.99	12.57*	79

* 1948-62 Adjusted Average

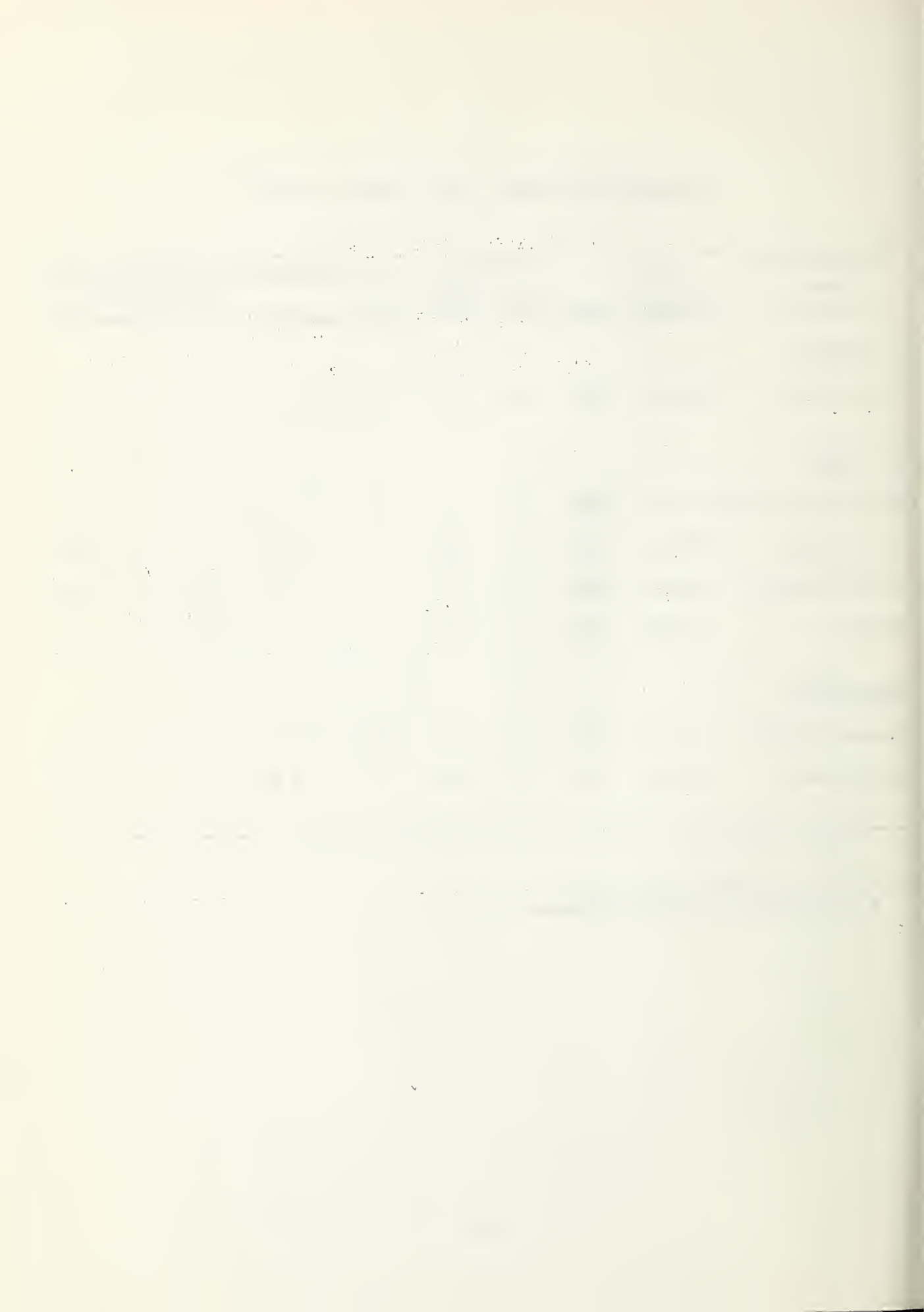
** Data supplied by U.S. Forest Service



ARIZONA SOIL MOISTURE - ABOUT MARCH 15, 1967

Drainage Basin and Station	<u>1/</u> Station Number	Elev.	Soil Profile in Inches		Date	Soil Moisture Content in Inches			
			Depth	Cap.		1967	Past Record		Avg.
							1966	1965	
<u>GILA RIVER</u>									
Frisco Divide	8S1-M	8000	48	13.3	3/13	10.2	12.5	11.7	11.2
<u>SALT RIVER</u>									
Black River Divide	9S10-*	9100	48	16.8	3/14	17.9	18.1	17.9	15.5
Canyon Creek	10R7-M	7500	48	18.3	3/14	18.4	18.3	14.6	14.3
Corduroy Creek	10R8-*	6000	36	13.5	3/14	9.4	13.8	10.1	8.6
McNary	9R2-M	7200	48	16.3	3/14	15.8	17.9	17.9	14.2
<u>VERDE RIVER</u>									
Mormon Mountain	11R3-M	7500	48	16.1	3/14	17.8	17.7	17.7	15.1
Newman Park	11P5-M	6750	36	17.7	3/14	19.5	19.5	19.5	15.8

1/ * - Soil Moisture Station Only
M - Snow Course and Soil Moisture Station



SNOW COURSE

Baker Butte -----
 Baldy -----
 Bear Wallow -----
 Beaver Head -----
 Bill Williams Intermediate ----
 Bill Williams Summit -----
 Bright Angel -----
 Camp Wood -----
 Canyon Creek -----
 Canyon Point -----
 Chalender -----
 Copper Basin Divide -----
 Coronado Trail -----
 Crazy Horse -----
 Emory Pass -----
 Forest Dale -----
 Ft. Apache -----
 Fort Valley -----
 Frisco Divide -----
 Gaddes Canyon -----
 Grand Canyon -----
 Hannagan Meadows -----
 Happy Jack -----
 Hawley Lake -----
 Heber -----
 High Peak -----
 Hummingbird -----
 Ice King -----
 Inman -----
 Iron Springs -----
 Maverick Fork -----
 McKnight Cabin -----
 McNary -----
 Milk Ranch -----
 Mingus Mountain -----
 Mogollon -----
 Mormon Lake -----
 Mormon Mountain -----
 Mt. Ord -----
 Munds Park -----
 Newman Park -----
 Nutrioso -----
 Pacheta -----
 Redstone Trail -----
 Rose Canyon -----
 Silver Creek Divide -----
 Smith Cienega -----
 Snow Bowl #1 -----
 Snow Bowl #2 -----
 State Line -----
 White Horse Lake Junction -----
 White Spar -----
 Whitewater -----
 Williams Ski Run -----
 Willow Ranch -----
 Wilson Lake -----
 Workman Creek -----

SNOW SURVEYOR

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 N. A. Josh
 Forest Service - Chuck Scheier
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 National Park Service - Bob Peterson
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The Following Organizations Cooperate in the Arizona Snow Survey Work

FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service

Apache Forest

Coconino Forest

Coronado Forest

Gila Forest

Kaibab Forest

Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Tonto Forest

Department of Commerce

Weather Bureau

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Region III

Geological Survey

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San Carlos Irrigation Project

National Park Service

Grand Canyon National Park

Gila Water Commissioner

Safford, Arizona

STATE

Arizona Agricultural Experiment Station

IRRIGATION PROJECTS

Salt River Valley Water Users' Association

Phoenix, Arizona

San Carlos Irrigation and Drainage District

Coolidge, Arizona

PRIVATE

Southwest Forest Industries, Inc.

McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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with the Snow Survey"*